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## CLAIMS

1. A method for characterizing a sample,  
 characterized in that  
 a) a sample, or pair of samples, is (are) characterized using a monitoring technique such that  
 5 a multi dimensional response is generated according to

$$I(\alpha, \beta, \gamma, \delta, \dots) = \sum_{i=1}^r c_i I_i(\alpha) I_i(\beta) I_i(\gamma) I_i(\delta) \dots,$$

b) the response monitored is broken down to an orthogonal basis e.g., using a principal component division,  
 10 c) the number of components (r) in the sample is estimated,  
 d) the arbitrary normalized 1-dimensional responses of the components are calculated.

2. A method according to claim 1, wherein the number of samples is two and these are analysed using a method generating a 2-dimensional response according to

$$15 I(\alpha, \beta) = \sum_{i=1}^r I_i(\alpha) c_i I_i(\beta)$$

and the 1-dimensional responses of the components and the ratios between their concentrations in the two samples, ( $c_i^A/c_i^B$ ), is calculated by solving the equation system

$$20 I^A(\alpha, \beta) = \sum_{i=1}^r I_i(\alpha) c_i^A I_i(\beta)$$

$$I^B(\alpha, \beta) = \sum_{i=1}^r I_i(\alpha) c_i^B I_i(\beta)$$

3. A method according to claim 2, wherein the two samples are generated from one sample.

A 25 4. A method according to claim 1 or 2, wherein one of the samples is used as a standard sample to determine the concentrations of the components in a test sample.

5. A method according to claim 1, wherein a single sample is analysed using a technique generating 3-dimensional response:

$$30 I(\alpha, \beta, \gamma) = \sum_{i=1}^r c_i I_i(\alpha) I_i(\beta) I_i(\gamma)$$

and the arbitrary normalized 1-dimensional responses of the components,  $\tilde{I}_i(\alpha)$  and  $\tilde{I}_i(\beta)$  and  $\tilde{I}_i(\gamma)$  are calculated.

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6. A method according to claim 1, wherein a single sample is analysed using a technique generating a 2-dimensional response simultaneously as external parameters are varied in such a way that the concentration of the components are changed in time:

$$I(\alpha, \beta, \gamma) = \sum_{i=1}^n c_i(t) I_i(\alpha) I_i(\beta)$$

5 and the arbitrary normalized 1-dimensional responses,  $\tilde{I}_i(\alpha)$  and  $\tilde{I}_i(\beta)$  and their changes as to concentration  $c_i(t)$  is calculated.

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7. A method according to ~~one or more of claims 1-6~~, wherein more than two data points are 10 monitored in only two of the dimensions.

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8. A method according to ~~one or more of claims 1-7~~, wherein the method generating the multi dimensional response is fluorescence or nuclear magnetic resonance method.

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15 9. A method according to ~~one or more of claims 1-8~~, wherein the variations along, at least one of the dimensions, is obtained by varying one external parameter, such as time, electrical or magnetical field, temperature, modulation, or polarisation

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20 10. A method according to ~~any of claims 8 or 9~~, for characterizing a test sample by analysing time dependent emission/excitation spectra, where the time relates to time after excitation, time after the mixing of <sup>the</sup> components, time after a certain treatment of the components, such as chromatographic separation or the similar.

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25 11. A method according to ~~any of claims 8 and 9~~ for characterizing a test sample by analysing two time dependencies, in combination with at least some other dependency, such as the wave length of the light, where the two time dependencies relates to time after excitation, time after the mixing of the components, time after the treatment of the components, such as a chromatographic separation.

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PATENT APPLICATION  
October 23, 2000

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I hereby certify that this paper and the attachments named herein are being deposited with the United States Postal Service as Express Mail in an envelope addressed to Commissioner of Patents and Trademarks, Box PCT, Washington, D.C. 20231 on October 23, 2000. Express Mail No. EL 556132139US.

10/23/00

Date of Signature

  
Linda L. Orr

DOCKET # 96EX910  
Applicant : Kubista, Mikael  
Serial No. : TBA  
International Filing Date : October 23, 2000  
Title : Method for characterizing samples

**PRELIMINARY AMENDMENT**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

Preliminary to calculating the fees for the application filed herewith please change claims as follows:

**Claim 4:** Please delete the words "or 2".

**Claim 7:** Please delete the words "one or more of claims 1-6," and replace with the words --claim 1--.

**Claim 8:** Please delete the words "one or more of claims 1-7," and replace with the words --claim 1 --.

**Claim 9:** Please delete the words "one or more of claims 1-8," and replace with the

words --claim 1--.

**Claim 10:** Please delete the words "to any of claims 8 or 9" and replace with the words --to claim 8--. On line 3 of claim 10 please delete the word "thge" and substitute the word --the--.

**Claim 11:** Please delete the words "to any of claims 8 and 9" and replace with the words --to claim 8--.

Please add claims 12-14 as follows:

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--12. A method according to claim 2, wherein one of the samples is used as a standard sample to determine the concentrations of the components in a test sample --.

--13. A method according to claim 9, for characterizing a test sample by analyzing time dependent emission/excitation spectra, where the time relates to time after excitation, time after the mixing of the components, time after a certain treatment of the components, such as chromatographic separation or the similar.--

--14. A method according to claim 9 for characterizing a test sample by analyzing two time dependencies, in combination with at least some other dependency, such as the wave length of the light, where the two time dependencies relate to time after excitation, time after the mixing of the components, time after the treatment of the components, such as chromatographic separation.--

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Respectfully submitted,

OPPEDAHL & LARSON LLP

*Marina T. Larson*

Marina T. Larson, Ph.D.

Reg. No. 32,038

P.O. Box 5068

Dillon, Co. 80435-5068

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